

REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the above amendments and in light of the following discussion, is respectfully requested.

Claims 1-8 and 10-18 are pending, with Claims 13-18 being withdrawn from consideration. Claim 1 is amended without introducing any new matter.¹

The Office Action rejected Claims 1-4 and 6-12 under 35 U.S.C. § 103(a) as unpatentable over Angell (U.S. Patent No. 5,658,423) in view of Odagiri (U.S. Patent Application Publication No. 2002/0067493); and rejected Claim 5 under 35 U.S.C. § 103(a) as unpatentable over Angell in view of Odagiri and Le (U.S. Patent No. 6,153,155).

Applicants acknowledge with appreciation the courtesy of Examiner Anya in conducting a personal interview with Applicants' representative on September 18, 2009. During the personal interview, Applicants' representative discussed amending independent Claim 1 to clarify the relationship between the projection of additional data and the first and second weighting factor. As set forth in the Interview Summary, Examiner Anya indicated that the amendments that were discussed overcome the prior art of record, and that further search will be required.

Claim 1 relates to a method of monitoring a processing system for processing a substrate during the course of semiconductor manufacturing. The method includes acquiring data from the processing system for a plurality of observations. The data includes a plurality of data variables. One or more principal components of the data are determined for the plurality of observations using principal components analysis. A first weighting factor is applied to a first one of the plurality of data variables and a second weighting factor is applied to a second one of the plurality of data variables during the principal components

¹ Support for amended Claim 1 can be found at least at paragraphs [0048]-[0057] of the specification as originally filed.

analysis. Additional data is acquired from the processing system. Amended Claim 1 clarifies that at least one statistical quantity is determined from one or more scores calculated from a projection of the additional data onto the one or more principal components determined by using the first weighting factor and the second weighting factor. The first weighting factor is based on a first relative importance of the first one of the plurality of data variables, the second weighting factor is based on a second relative importance of the second one of the plurality of data variables, and the first relative importance is different from the second relative importance.

Turning to the applied references, the Office Action acknowledges that Angell fails to disclose applying a first weighting factor to a first one of the plurality of data variables and a second weighting factor to a second one of the plurality of data variables during the principal component analysis.² The Office Action then asserts that paragraph [0143] of Odagiri cures this deficiency, and that paragraphs [0144] and [0145] of Odagiri disclose that the first weighting factor is based on a first relative importance of a first one of the plurality of data variables, the second weighting factor is based on a second relative importance of the second one of the plurality of data variables, and a first relative importance is different than the second relative importance.³ The Office Action further asserts that “[t]here is no evidence in the claims, that the principal components weighted according to the order of data importance are the same principal components on which additionally acquired data are projected on.”⁴

As noted above, amended Claim 1 clarifies that the projection of the additional data is made onto the one or more principal components that are determined by using the first weighting factor and the second weighting factor. Further, as discussed during the personal interview, Claim 1 recites a plurality of data variables and further recites applying the first

² See the Office Action at page 3, item 6.

³ See the Office Action at page 4, item 7.

⁴ See the Office Action at page 7, item 20.

weighting factor to a first one of the plurality of data variables and the second weighting factor to a second one of the plurality of data variables. By contrast, paragraphs [0141]-[0146] of Odagiri describe applying several different weights to several different values of a single data variable. In particular, the noted portion of Odagiri is directed to removing noise included in spectral reflectance data. Odagiri fails to disclose or suggest applying weighting to any other data variable than spectral reflectance data, much less different weightings based on the relative importance of each of the data variables. Therefore, Odagiri fails to disclose or suggest applying first and second weighting factors that are respectively based on a first relative importance and a second relative importance of a first one of a plurality of data variables and a second one of a plurality of data variables.

Accordingly, even the combined teachings of Angell and Odagiri fail to disclose or suggest all the features recited in amended Claim 1. It is submitted that Claim 1 and the claims depending therefrom are in condition for allowance.

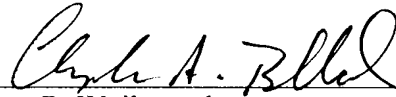
With respect to the rejection of dependent Claim 5, Le fails to cure the deficiencies in the combined teachings of Angell and Odagiri discussed above with respect to independent Claim 1. Accordingly, Claim 5 is believed to be in condition for allowance.

For the reasons discussed above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance for Claims 1-8 and 10-18 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below-listed telephone number.

Respectfully submitted,

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